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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/777,192	02/13/2004	Takenobu Kobayashi	00684.003585	7532

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FITZPATRICK CELLA HARPER & SCINTO  
30 ROCKEFELLER PLAZA  
NEW YORK, NY 10112

EXAMINER
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DALEY, CLIFTON G

ART UNIT	PAPER NUMBER
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2624

MAIL DATE	DELIVERY MODE
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12/11/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	Application No. 10/777,192	Applicant(s) KOBAYASHI ET AL.	
	Examiner Clifton G. Daley	Art Unit 2624	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 2/13/2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 February 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |                                                                                                                                   |                                                                                         |
|-----------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                                       | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                              | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>2/4/2005</u> . | 6) <input type="checkbox"/> Other: _____                                                |

## **DETAILED ACTION**

### ***Drawings***

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: 23 (Fig. 1), STEP 105 (Fig. 7A), STEP 108 and STEP 109 (Fig. 7B), STEP 210 (Fig. 8B) . Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.
2. The drawings are objected to because the specification refers to reference characters CL1, CL2, CL3, CR1, CR2 and CR3 in Fig. 3. However these reference characters are found only in Fig. 2. Also, the specification refers to a "reticle 1" and a "projection lens 1" in Fig. 1. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures

appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1, 2, 4, 6-8, 10 and 12-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamada et al. (Hereinafter "Yamada": US6081614) in view of David (US 6068954).

**Regarding claims 1 and 7**, Yamada teaches a method and analogous apparatus of measuring a position of a surface of an object while relatively scanning the object and a detection unit, said method comprising: a first measuring step for relatively scanning the detecting unit and a first object in a plurality of directions **(column 7, lines 12-16, i.e. X-Y)** and for measuring, with respect to each of the plurality of directions, a surface position of the first object **(column 2, line 66 to column 3, line 3)**; a calculating step for calculating a corrective amount for correcting a surface position to be provided by the detecting unit, on the basis of the surface positions obtained with respect to the plurality of directions at said first measuring step **(column 8, lines 22-40)**

Yamada does not teach the limitation of a second measuring step for measuring a surface position of a second object while relatively scanning the detecting unit and the second object in any one of the plurality of directions; and a correcting step for correcting the surface position of the second object obtained by said second measuring step, on the basis of the corrective amount obtained by said calculating step.

However, David discloses a surface position measurement method comprising a second measuring step and correcting step for a second object **(column 7, lines 1-1-3, i.e. multiple wafers per lot)**.

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to combine David's method with Yamada's teaching, the motivation being to increase throughput.

**Regarding claims 2 and 8**, Yamada in combination with David teaches a method and analogous apparatus according to claim 1, wherein the object is a semiconductor wafer (**Yamada: column 1, lines 7-19**).

**Regarding claims 4 and 10**, Yamada in combination with David teaches a method and analogous apparatus according to claim 1, wherein, at said first measuring step, the surface position of the first object is measured with regard to a plurality of sample shot regions on the first object (**Yamada: column 8, lines 23-30**).

**Regarding claims 6 and 12**, Yamada in combination with David teaches a method and analogous apparatus according to claim 1, wherein, in said calculating step, data of surface position to be used for calculation of the corrective amount is chosen on the basis of a difference in the surface positions obtained at said first measuring step with respect to the plurality of directions (**Yamada: column 12, lines 17-22**).

**Regarding claim 13**, Yamada in combination with David teaches an exposure apparatus for exposing an object to a pattern, comprising: a measuring system as recited in claim 7, for measuring a surface position of the object (**Fig. 1**); and exposure means for exposing the object with the pattern (**Fig. 1**).

**Regarding claim 14**, Yamada in combination with David teaches an apparatus according to claim 13, wherein said exposure apparatus is a scanning exposure apparatus (**Yamada: column 1, lines 9-15**).

**Regarding claim 15**, Yamada in combination with David teaches a device manufacturing method, including a step of exposing an object to a pattern by use of an exposure apparatus as recited in claim 13 (**Fig. 5**).

5. Claims 3, 5, 9 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamada in combination with David as applied to claim 1 above, and further in view of Kataoka et al. (Hereinafter "Kataoka": US 5751428).

**Regarding claims 3 and 9** Yamada in combination with David teaches a method and analogous apparatus according to claim 1.

Yamada in combination with David does not teach the limitation wherein the plurality of directions are two opposite directions.

However, Kataoka discloses a surface position detection method and apparatus wherein the plurality of directions are two opposite directions (**Fig. 12 and column 10, lines 22-29**).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to combine Kataoka's method with Yamada's teaching, the motivation being to provide satisfactory coverage of the wafer (**Kataoka: column 10, lines 44-49**).

**Regarding claims 5 and 11**, Yamada in combination with David teaches a method and analogous apparatus according to claim 1.

Yamada in combination with David does not teach the limitation wherein, in said calculating step, the corrective amount is calculated so that the surface positions

obtained at said first measuring step with respect to the plurality of directions are registered with a position to be defined by weighted-averaging them.

However, Kataoka discloses a calculating step wherein the corrective amount is calculated so that the surface positions obtained at said first measuring step with respect to the plurality of directions are registered with a position to be defined by weighted-averaging them **(column 9, lines 19-25)**.

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to combine Kataoka's calculating step with Yamada's teaching, the motivation being to provide good estimates of position when more than one measurement are available.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Clifton G. Daley whose telephone number is 571-270-3144. The examiner can normally be reached on Monday - Friday 7:30am - 4:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Samir Ahmed can be reached on 571-272-7413. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.



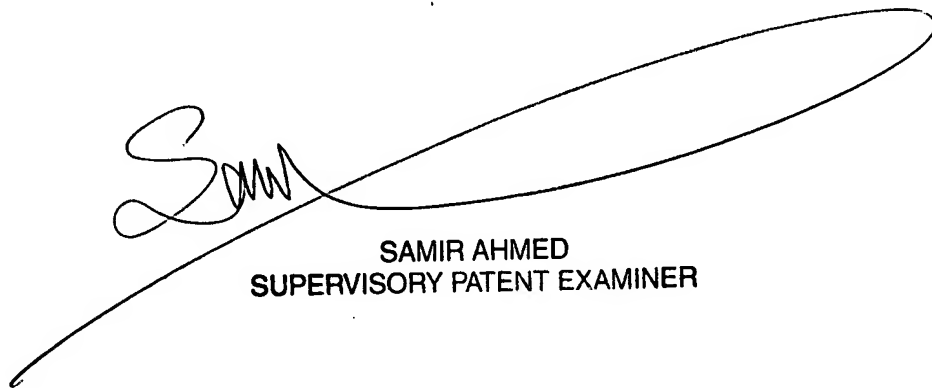
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Samir Ahmed  
SPE  
Art Unit 2624

CGD  
12/6/2007



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